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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/840,023

05/05/2004

Dennis P. Ward

10541-1997

9648

29074

7590

02/18/2009

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EXAMINER

KURR, JASON RICHARD

ART UNIT

PAPER NUMBER

2614

MAIL DATE

DELIVERY MODE

02/18/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/840,023	Applicant(s) WARD ET AL.	
	Examiner JASON R. KURR	Art Unit 2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-15 and 17-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-15 and 17-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1 and 16 have been cancelled and will not be further considered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 4, 6 and 9-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Singhi et al (US 5,345,510) in view of Nakajima (US 6,779,826 B2).

With respect to claim 11, Singhi discloses a system for detecting fault conditions in an audio system, the audio system including a remote audio generation device (fig.2 #23), an amplifier unit (fig.2 #22), the system comprising: an audio generation circuit (fig.2 #23); a switch (fig.2 #100) coupled to the audio generation circuit configured to selectively connect the audio generation circuit to the amplifier unit (col.4 ln.62-66); and a fault detection circuit (fig.2 #21) configured to monitor an audio output of the switch to detect fault conditions and provide a control signal to a control input of the switch to selectively disconnect the audio generation circuit from the amplifier (col.5 ln.44-56); and a first capacitor (fig.2 #123) in electrical series connection between the switch and an output speaker (fig.2 #80).

Singhi does not disclose expressly wherein there is a wire harness connected between the audio generation device and the amplifier unit such that the first capacitor is in series connection between the switch and the wire harness.

Nakajima discloses an audio system wherein a wire harness (fig.8 #5) is connected between an audio generation device (fig.8 #2) and amplifiers (not shown) to output transducers. It is well known in the art that automotive audio systems contain such wiring harnesses to connect to audio generation devices. At the time of the invention it would have been obvious to a person of ordinary skill in the art to use wire harness of Nakajima between the switch and amplifying unit of Nakajima. This would allow for easy replacement of loudspeakers within the intercom system. It is well known that many loudspeakers in intercom systems contain built in amplifiers, such that the amplifiers corresponding to speakers #80-84 would be easily separated from the signal source #23 by the wire harness of Nakajima.

With respect to claim 2, Singhi discloses the system according to claim 11, wherein the fault detection circuit is configured to send a diagnostic signal to an audio system controller (fig.3 #140) when a fault condition occurs (col.7 ln.13-36).

With respect to claim 4, Singhi discloses the system according to claim 11, wherein the fault detection circuit is configured to generate the control signal if the audio output is above a threshold value (col.7 ln.29-36).

With respect to claim 6, Singhi discloses the system according to claim 11, wherein the fault detection circuit is configured to generate the control signal if the audio output is below a threshold value (col.7 ln.29-36).

With respect to claim 9, Singhi discloses the system according to claim 11, wherein the fault detection circuit is configured to delay for a predetermined time period before sampling once a fault condition has occurred. It is inherent that the controller #21 of Singhi has a delay during the processing of the fault condition.

With respect to claim 10, Singhi discloses the system according to claim 11, further comprising: a transistor coupled to the switch, the transistor being configured to simultaneously control multiple outputs of the switch simultaneously. It is implied that transistors are used to implement relays, such as the relay #100 of Singhi which is under control of system controller #21.

With respect to claim 12, Singhi discloses the system according to claim 11, further comprising: a first resistor (fig.2 #110) between the switch and a power source.

With respect to claim 13, Singhi discloses the system according to claim 12, further comprising: a second resistor (fig.2 #111) between the wire harness and the power source.

With respect to claim 14, Singhi discloses the system according to claim 13, further comprising: a second capacitor (fig.2 #137) between the wire harness and an electrical ground.

With respect to claim 15, Singhi discloses the system according to claim 11, wherein the fault detection circuit is coupled to the audio outputs of the switch through the first capacitor (fig.2).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Singhi et al (US 5,345,510) in view of Nakajima (US 6,779,826 B2) and in further view of Augustyn et al (US 5,940,518).

With respect to claim 3, Singhi discloses the system according to claim 2 however does not disclose expressly wherein the audio system controller stores the diagnostic signal in memory.

Augustyn discloses a system for indicating faults in an audio system where a fault detection circuit (fig.1 #16) is configured to send a diagnostic signal to an audio system controller (fig.1 #22) when a fault condition occurs and the controller stores the fault data to memory (col.1 ln.39-44). At the time of the invention it would have been obvious to a person of ordinary skill in the art to store the fault detection data of Singhi to a memory as performed by Augustyn. The motivation for doing so would have been track the occurrence of faults within the audio system.

Claims 5, 7-8, 17 and 19-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Singhi et al (US 5,345,510) in view of Nakajima (US 6,779,826 B2) and in further view of Neunaber (US 6,940,981 B2).

With respect to claim 5, Singhi discloses the system according to claim 4, however does not disclose expressly wherein the fault detection circuit includes a counter, and the fault detection circuit is configured to generate the control signal if the audio output exceeds the threshold for a predetermined number of samples.

Neunaber discloses a method for detecting and controlling fault conditions wherein a counter (sampling frequency) of a controller (fig.3 #58) determines the average value of multiple samples of a signal and compares it to a threshold value (fig.4 #94 "PT") for the purpose of controlling the gain of the signal (col.5 ln.44-67, col.6 ln.1-21). At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the averaging of samples of a predetermined time period of Neunaber when determining the fault condition of Singhi. The motivation for doing so would have been to discard random discrete peak anomalies of the signal from the audio source when determining a fault condition.

With respect to claim 7, Singhi discloses the system according to claim 6, however does not disclose expressly wherein the fault detection circuit includes a counter, and the fault detection circuit is configured to generate the control signal if the audio output exceeds the threshold for a predetermined number of samples.

Neunaber discloses a method for detecting and controlling fault conditions wherein a counter (sampling frequency) of a controller (fig.3 #58) determines the average value of multiple samples of a signal and compares it to a threshold value (fig.4 #94 "PT") for the purpose of controlling the gain of the signal (col.5 ln.44-67, col.6 ln.1-21). At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the averaging of samples of a predetermined time period of Neunaber when determining the fault condition of Singhi. The motivation for doing so would have been to discard random discrete peak anomalies of the signal from the audio source when determining a fault condition.

With respect to claim 8, Singhi discloses the system according to claim 11, however does not disclose expressly wherein the fault detection circuit is configured to average multiple samples to generate an average output and compare the average output to a threshold.

Neunaber discloses a method for detecting and controlling fault conditions wherein a counter (sampling frequency) of a controller (fig.3 #58) determines the average value of multiple samples of a signal and compares it to a threshold value (fig.4 #94 "PT") for the purpose of controlling the gain of the signal (col.5 ln.44-67, col.6 ln.1-21). At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the averaging of samples of a predetermined time period of Neunaber when determining the fault condition of Singhi. The motivation for doing so would have been to discard random discrete peak anomalies of the signal from the audio source when determining a fault condition.

With respect to claim 23, Singhi discloses a method for detecting fault conditions in an audio system, the audio system including a remote audio generation device (fig.2), an amplifier unit (fig.2 #22), the method comprising: generating an audio signal using an audio generation circuit (fig.2 #23); selectively connecting the audio generation circuit to the amplifier unit using a switch (fig.2 #100); and monitoring an audio output of the switch to detect fault conditions (fig.2 #21, col.5 ln.44-56); and providing a control signal to a control input of the switch to selectively disconnect the audio generation circuit from the wire harness (col.4 ln.62-66).

Singhi does not disclose expressly wherein there is a wire harness connected between the audio generation device and the amplifier unit.

Nakajima discloses an audio system wherein a wire harness (fig.8 #5) is connected between an audio generation device (fig.8 #2) and amplifiers (not shown) to output transducers. It is well known in the art that automotive audio systems contain such wiring harnesses to connect to audio generation devices. At the time of the invention it would have been obvious to a person of ordinary skill in the art to include a wiring harness in the automotive audio system of Singhi. The motivation for doing so would have been to allow for easy installation of after-market audio generation devices.

Singhi does not disclose expressly wherein monitoring the audio output includes averaging multiple samples to generate an average output and comparing the average output to a threshold.

Neunaber discloses a method for detecting and controlling fault conditions wherein a counter (sampling frequency) of a controller (fig.3 #58) determines the average value of multiple samples of a signal and compares it to a threshold value (fig.4 #94 "PT") for the purpose of controlling the gain of the signal (col.5 ln.44-67, col.6 ln.1-21). At the time of the invention it would have been obvious to a person of ordinary skill in the art to use the averaging of samples of a predetermined time period of Neunaber when determining the fault condition of Singhi. The motivation for doing so would have been to discard random discrete peak anomalies of the signal from the audio source when determining a fault condition.

With respect to claim 17, Trump discloses the method according to claim 23, further comprising providing a diagnostic signal to an audio system controller (fig.3 #140) when a fault condition occurs (col.7 ln.13-36).

With respect to claim 19, Singhi discloses the method according to claim 23, wherein the fault detection circuit is configured to generate the control signal if the audio output is above a threshold value (col.7 ln.29-36).

With respect to claim 20, Singhi discloses the method according to claim 19, wherein the fault detection circuit includes a counter, and the fault detection circuit is configured to generate the control signal if the audio output exceeds the threshold for a predetermined number of samples (Neunaber: col.5 ln.44-67, col.6 ln.1-21).

With respect to claim 21, Singhi discloses the method according to claim 23, wherein the fault detection circuit is configured to generate the control signal if the audio output is below a threshold value (col.7 ln.29-36).

With respect to claim 22, Singhi discloses the method according to claim 21, wherein the fault detection circuit includes a counter (Neunaber: col.5 ln.52-59), and the fault detection circuit is configured to generate the control signal if the audio output exceeds the threshold for a predetermined number of samples (col.7 ln.29-36).

With respect to claim 24, Singhi discloses the method according to claim 23, further comprising delaying for a predetermined time period before sampling once a fault condition has occurred. It is inherent that the controller #21 of Singhi has a delay during the processing of the fault condition.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Singhi et al (US 5,345,510) in view of Nakajima (US 6,779,826 B2) in view of Neunaber (US 6,940,981 B2) and in further view of Augustyn et al (US 5,940,518).

With respect to claim 18, Singhi discloses the system according to claim 17, however does not disclose expressly wherein the audio system controller stores the diagnostic signal in memory.

Augustyn discloses a system for indicating faults in an audio system where a fault detection circuit (fig.1 #16) is configured to send a diagnostic signal to an audio system controller (fig.1 #22) when a fault condition occurs and the controller stores the fault data to memory (col.1 ln.39-44). At the time of the invention it would have been obvious to a person of ordinary skill in the art to store the fault detection data of Singhi to a memory as performed by Augustyn. The motivation for doing so would have been track the occurrence of faults within the audio system.

Response to Arguments

Applicant's arguments with respect to claims 11, 15, 8 and 23 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Zerod et al (US 4,978,926) discloses an audio limiter using voltage multiplexed feedback.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON R. KURR whose telephone number is (571)272-0552. The examiner can normally be reached on M-F 10:00am to 6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (571) 273-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jason R Kurr/
Examiner, Art Unit 2614

/Vivian Chin/
Supervisory Patent Examiner, Art Unit 2614